


Membrane stability index (MSI)

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 An abbreviated version of this protocol was published in Scientific Reports in Jul 2021

Geodiversity impacts plant community structure in a semi-arid region

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Detailed protocol

Membrane stability index (MSI)

Fresh tissues (leaves or roots) are soaked in distilled, de-ionized water and solutes are allowed to efflux from the tissue into the solution until leakage ceases, and the electrical conductivity of the solution is measured (initial leakage, Ci).

Following this measurement, samples are autoclaved to allow a complete leakage of solutes.

The conductivity of the solution is then measured and is considered as the maximum electrolyte leakage (Cm).

Prepare your samples

1. Fill up a 50ml plastic tube in 20ml DDW.
2. Cut a sample into small pieces and put in a sieve
3. Wash the sample with DDW using a squeezed bottle
4. Use tweezers to collect the washed sample and insert it into the 50ml tubes.
5. Add few blank tubes (20ml of DDW with no sample).
6. Shake it overnight

The next day:

1. Measure the EC (Ci)
2. Close the tubes not too tight
3. Mark your samples with an indicating tape for autoclave
4. Put in the autoclave (program – liquid sterilizing)

After autoclave

1. Measure EC (Cm)
2. Calculate your results:

Equation 1:

$$MSI = 100 * \frac{C_f - C_i}{C_m - C_i}$$

How to cite: (Readers should cite both the Bio-protocol preprint and the original research article where this protocol was used)

1. Falco, N. (2022). Membrane stability index (MSI). Bio-protocol Preprint. bio-protocol.org/prep1675.
2. Falco, N. D., Tal-Berger, R., Hjazin, A., Yizhaq, H., Stavi, I. and Rachmilevitch, S.(2021). Geodiversity impacts plant community structure in a semi-arid region. Scientific Reports 0(0). DOI: [10.1038/s41598-021-94698-0](https://doi.org/10.1038/s41598-021-94698-0)

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